

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

**AIR LIQUIDE ADVANCED  
TECHNOLOGIES, U.S. LLC**

**Plaintiff,**

**V.**

**CARLETON LIFE SUPPORT SYSTEMS,  
INC. dba COBHAM MISSION SYSTEMS  
and COBHAM plc**

## Defendants.

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**CASE NO:**

## JURY TRIAL DEMANDED

## COMPLAINT

Air Liquide Advanced Technologies, U.S. LLC (“Air Liquide”), for its complaint of patent infringement against Defendants Carleton Life Support Systems, Inc. and Cobham plc (collectively, “Cobham”), alleges as follows:

## THE PARTIES

1. Plaintiff Air Liquide is a Delaware corporation with its principal place of business at 200 GBC Drive, Newark, Delaware 19702.
2. Upon information and belief, Defendant Carleton Life Support Systems, Inc. is a Delaware corporation with its principal place of business at 2734 Hickory Grove Road, Davenport, Iowa, 52804.
3. Upon information and belief, Defendant Cobham plc is a corporation registered in England and Wales with its principal place of business at Brook Road, Wimborne, Dorset, BH21 2BJ, England.

### **JURISDICTION & VENUE**

4. This action arises under the patent statutes of the United States, 35 U.S.C. § 271 et seq. Accordingly, the Court has federal question jurisdiction over this matter under 28 U.S.C. §§ 1331 and 1338(a).

5. The court has personal jurisdiction over each of the Cobham defendants.

6. Venue is properly within this district in accordance with 28 U.S.C. § 1391 (b) and (c) and § 1400 (b).

### **FACTS AND BACKGROUND**

#### **Air Liquide's Ingenuity**

7. The Air Liquide Group is a world leader in gases, technologies and services for Industry and Health. The Air Liquide Group collectively spends hundreds of millions dollars each year on innovation to maintain its status as a world leader. Those efforts have resulted in a portfolio of more than 11,000 patents and applications on over 300 new inventions per year.

8. Among its many offerings, Air Liquide manufactures and sells air separation membrane modules for incorporation into on-board inert gas generating systems ("OBIGGS") designed for inerting fuel storage tanks of aircraft to reduce the explosion hazard of the fuel contained therein.

9. On June 8, 2004, United States Patent No. 6,746,513 (the "'513 Patent") was issued for an invention entitled Integrated Membrane Filter. A copy of the '513 Patent is attached as Exhibit A and incorporated herein.

10. Air Liquide is the exclusive licensee of the '513 Patent with all substantial rights in the '513 Patent including the exclusive and irrevocable right to enforce it.

11. The '513 Patent relates to a technology that improves the functioning of OBIGGS and their components thereby increasing aircraft safety and reducing the required maintenance of OBIGSS systems and their components.

**Cobham's Unauthorized Use of Air Liquide's Intellectual Property**

12. Cobham provides fuel tank inerting systems and subsystems for both military and commercial aircraft.

13. Cobham advertises hollow fiber-based gas separation membranes for use in OBIGGS as well as OBIGGS utilizing hollow fiber membrane-based gas separation modules.

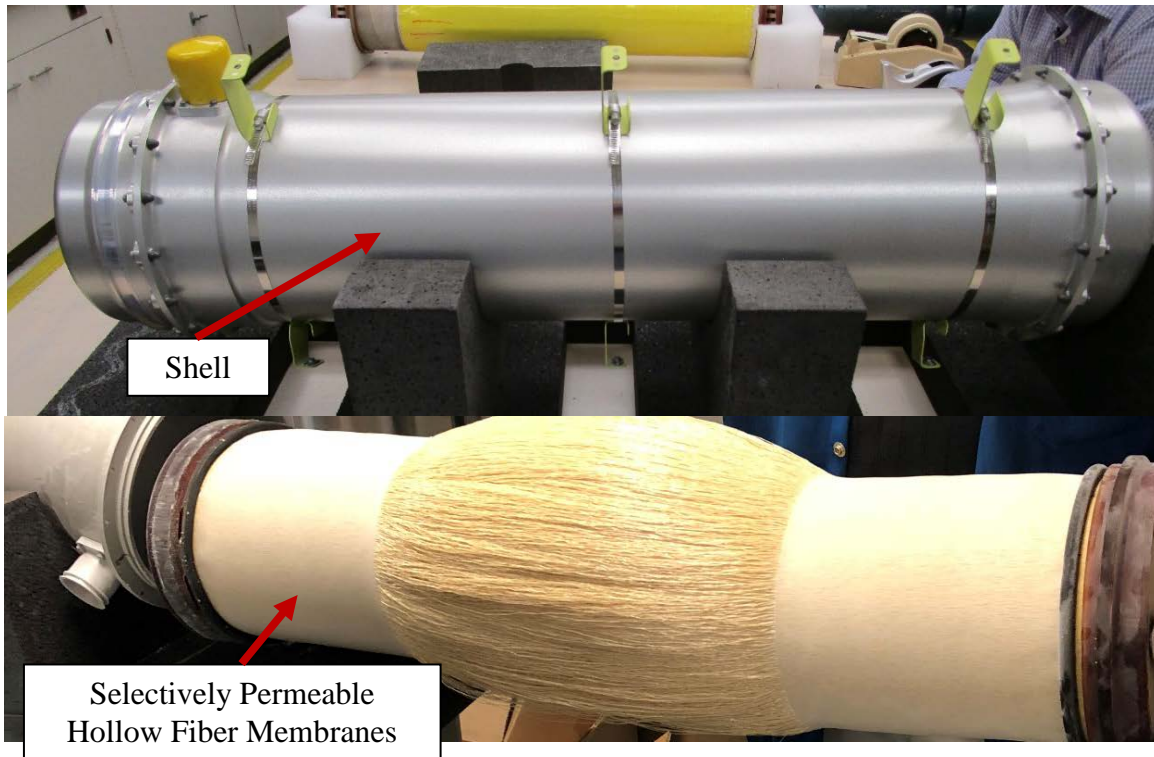
14. Cobham offers for sale and sells several OBIGGS products and hollow fiber-based gas separation membrane modules, including those having the following product names: AH-1Z OBIGGS, AH-64 OBIGGS, CH-47 OBIGGS, NC1166 AIR SEPARATION MODULE, NC1177 AIR SEPARATION MODULE, and NC1200 AIR SEPARATION MODULE. The CH-47 OBIGGS and NC1177 AIR SEPARATION MODULE products are described as having integrated filters.

15. On information and belief, the manufacture, offer for sale, sale, and use of Cobham's gas separation membrane modules for OBIGGS is covered by at least claims 1, 4, 5, 7, 10, 14, and 18 of the '513 Patent.

16. For example, Cobham sells an air separation module assembly bearing part number 3261211-0101 and serial number 00206638 (the "'638 Module").

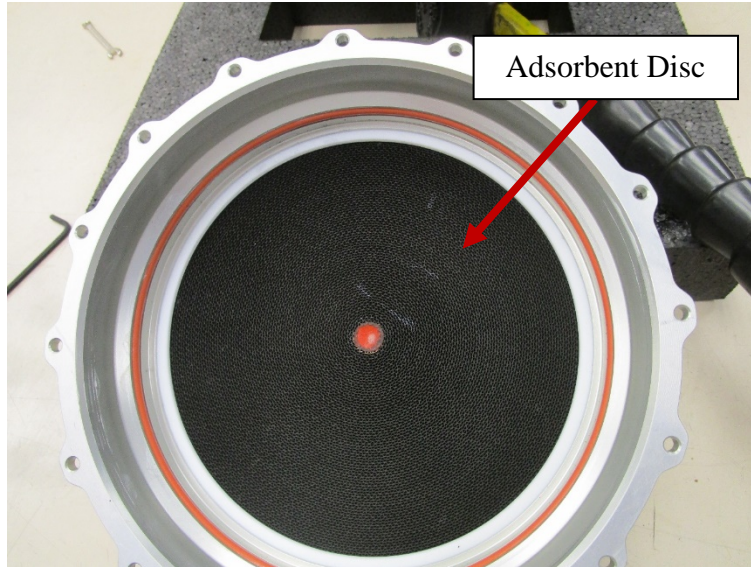
17. On information and belief, Cobham intends for the '638 Module to be installed in the following Boeing aircraft makes/models: 797-600 Series, 797-700 Series, 797-800 Series, 797-900 Series, and 797-900ER Series.

18. The '638 Module includes a shell enclosing selectively permeable hollow fiber membranes, arranged as an elongate bundle having two ends.



19. Each end of the elongate bundle of selectively permeable hollow fiber membranes is encased by a respective tubesheet that is sealed against an inner surface of the shell.
20. An inlet port is formed in the shell at a location in between an end of the shell and the location of the first of the two tubesheets.
21. A tube-side chamber is defined by the shell and the first of the two tubesheets adjacent the inlet port.

22. A disc is disposed in the tube-side chamber.



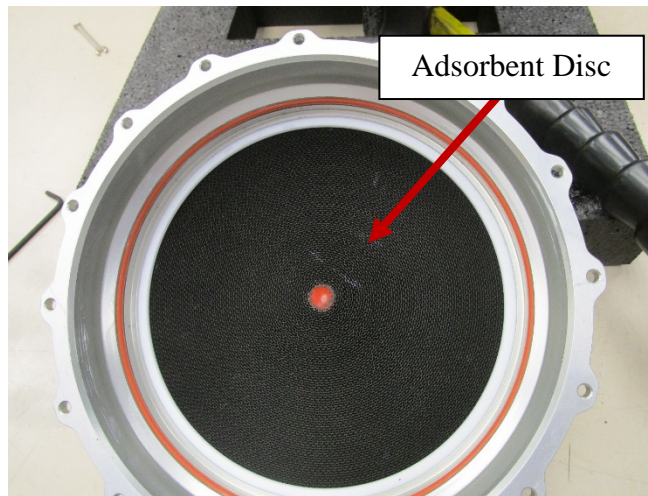
23. The disc consists of the chemical compound silicon dioxide ( $\text{SiO}_2$ ).
24. Silicon dioxide is an adsorbent material for adsorbing gaseous contaminants.
25. The disc selectively removes contaminants from a gas mixture through adsorption.
26. The disc is thus designed to significantly reduce concentrations of gaseous contaminants of an introduced gas mixture, including hydrocarbons, by filtering them out prior to contaminated air contacting the selectively permeable hollow fiber membranes inside the '638 Module.
27. A shell-side chamber is defined in between outer surfaces of the hollow fibers between the two tubesheets and an inner surface of the shell between the two tubesheets.
28. The design of the '638 Module is thus covered by at least claims 4, 5, 7, 10, 14, and 18 of the '513 Patent.
29. The method of using the '638 Module is covered by at least claim 1 of the '513 Patent.

#### **Cobham Attempts to Conceal its Infringement**

30. When notified of its infringement, Cobham attempted to cover it up by making objectively false factual representations about its '638 Module.

31. Air Liquide notified Cobham of its infringement on August 27, 2018.

32. Cobham responded by asserting that the '638 Module does not include an adsorbent filter. This assertion was false. The '638 Module clearly includes the silicon dioxide disc depicted below.



33. Air Liquide notified Cobham of this fallacy and identified the disc as the adsorbent filter.

34. Cobham responded by explaining that the identified disc is an integrated catalytic converter. This assertion was also false.

35. Catalytic filters filter hydrocarbons by oxidizing them into carbon dioxide and moisture. Thus, when a gas containing hydrocarbon contaminants is introduced to a catalytic filter, the resulting filtered gas will contain carbon dioxide and moisture in place of the hydrocarbons.

36. However, when gas containing hydrocarbon contaminants is introduced to the silicon dioxide disc of the '638 Module, the resulting filtered gas contains essentially no carbon dioxide.

37. Thus, as Cobham is well aware because the disc is part of its own product line, the disc of the '638 Module is not a catalytic filter.

38. Cobham's objectively false factual representations suggests that they are trying to hide their knowing and willful infringement of the '513 Patent.

**Count I: Patent Infringement**

39. Under 35 U.S.C. §§ 271 *et seq.*, Cobham infringes the '513 Patent through the unauthorized sale, offer for sale, importation, and/or use of '638 Module and other gas separation modules with similar designs.

40. Under 35 U.S.C. §§ 271 *et seq.*, Cobham infringes the '513 Patent by contributing to the unauthorized use of '638 Module and other gas separation modules with similar designs.

41. Under 35 U.S.C. §§ 271 *et seq.*, Cobham infringes the '513 Patent by inducing the unauthorized sale, offer for sale, importation, and/or use of '638 Module and other gas separation modules with similar designs.

42. On information and belief, Cobham will continue to infringe the claims in the '513 Patent unless enjoined by this Court.

43. Air Liquide has been damaged and will continue to be damaged by Cobham's infringing acts.

44. Cobham is actually aware of the '513 Patent and is willfully committing acts of infringement.

**JURY DEMAND**

45. Air Liquide demands a trial by jury on all issues.

**PRAYER FOR RELIEF**

WHEREFORE, Air Liquide prays the Court to:

- (a) grant a permanent injunction against Cobham's continued infringement;
- (b) award damages of not less than a reasonable royalty;
- (c) find that Cobham's infringement has been willful and under 35 U.S.C. § 284 increase such damages to three times the awarded amount;
- (d) award prejudgment and postjudgment interest;



- (e) find that this case is an exceptional case under 35 U.S.C. § 285 and award attorneys' fees;
- (f) award costs; and
- (g) grant all other relief to which Air Liquide is entitled.

Dated: February 27, 2019

/s/ Elizabeth S. Fenton  
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(Pro Hac Vice Motions to be Filed)